1851MNRAS..11..231S

*Extract of a Letter from the Rev. John Slatter, F.R.A.S., Rose Hill, near Oxford, June 26, 1851.**

"There was an occultation of *Jupiter's* fourth satellite on June 20th, at about $16^h\ 30^m\ 30^s$ Sid. Time, Rose Hill, not mentioned in the *Nautical Almanac*. The lowness of the planet prevented my making a satisfactory observation. I estimated that the centre of the satellite would pass about $1''$ below the apex of the planet.

"I have made the following observations of *Jupiter* and his satellites:—

Sidereal Time, Rose Hill.

		h	m	s		
1850.						
March 17	1st Sat.	8	25	9	Internal Contact.	Egress of Shadow.
	—		30	4	External —	
April 17	3d Sat.	10	12	0	Inter. —	Ingress of Shadow.
23	1st Sat.	11	14	45	Exter. —	Ingress of Satellite.
	—		20	45	Inter. —	
May 9	1st Sat.	11	40	40	Inter. —	Ingress of Shadow.
June 1	1st Sat.	14	28	28	Exter. —	Egress of Shadow.
2	2d Sat.	13	19	46·5	Estim. Centre.	Ingress of Satellite.
	—		22	16·5	Inter. Contact.	
1851.						
June 20	1st Sat.	14	26	37	Estim. Centre.	Ingress of Satellite.
	—		29	55	Inter. Contact.	
	1st Sat.	15	41	33	Estim. Centre.	Ingress of Shadow.
	—		43	38	Inter. Contact.	

The power used in all the observations was 236.

"The following observations were made on the relative brightness of the satellites. To avoid bias, I made a diagram, affixing to each satellite one of the four first letters in the alphabet, and put these down in the order of brightness before consulting the *N. A.* to identify them. The observations were made with full aperture and various powers, generally 120, 180, and 236. The order set down was the result of the scrutiny with all the powers, aided, when possible, by another eye; the judgment of which, taken independently, usually coincided with my own. The result may, therefore, be taken as a pretty accurate expression of what the instrument indicated at the time and place of observation. I must observe, however, that the atmosphere will be found to have a great effect on the observation; any slight haze is sometimes enough to surround the planet with a halo of false light: in this case a high power was sometimes of great service (though higher than the night could bear for purposes of clear vision), in order to separate the satellites far enough from the planet to admit of their being brought into the field for comparison without the planet.

"In thirty-eight days' observations, on twenty-four of which all four satellites were observed, the result was to place the order of

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* The telescope at Rose Hill is an achromatic of 4·9 inches' aperture and 7 feet focal length, by Simms, mounted equatoreally.

Latitude of Rose Hill, 51° 43′ 50″ N. Longitude, $0^h\ 4^m\ 56^s{\cdot}5$ West.

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brightness thus, 3, 1, 2, 4, on fifteen days; 3, 2, 1, 4, on nine days. There did not appear to be any periodicity in the changes of the first and second. In the series there were two instances of the remarkable diminution in brightness which the third always suffers in transiting the disc of the planet. June 6 it is noted as darker than the belts. With these exceptions it was always noted as the brightest. The fourth was always at the bottom of the scale, though noticed as comparatively much brighter at the period of greatest elongation; and this could not arise from contrast with the light of the planet, as the others would have been affected similarly (*e.g.* on the 20th of June last, the fourth and first were noticed at equal distances from the planet; the first much brighter than the edge it was approaching, the fourth remarkably dull). I think it will be found that there is a periodicity in this satellite's brightness answering to the line of quadratures and conjunctions. I only noted one exception to this, 1850, May 10, when all satellites were near *Jupiter*, and the order appeared 3, 4, 1.

"This method of observing by mutual comparison without reference to an absolute standard is, of course, very unsatisfactory, but something might be done by multiplied observations.

"On June 8, 1850, at 10 P.M. I observed a phenomenon which I had never seen before,—the whole of the north pole down to latitude 40° covered with a dark cloud of the same colour as the belts.*

"If, as there is every reason to suppose, *Jupiter* is covered with a gaseous envelope, is it not possible that the belts mark the situations where the ascending equatoreal and polar currents mix, and which may, in consequence, be incapable of reflecting light? The slight inclination of *Jupiter's* axis to his orbit would then account for their permanency."

Elements of the Elliptic Orbit of γ Virginis.

By Isaac Fletcher, Esq.

"The following elements of the orbit of γ *Virginis* were computed by Sir John Herschel's process, described in vol. v. of the Society's *Memoirs.* The observations used in the calculations are those compiled by Sir John in his volume of observations at the Cape, together with those which immediately follow, and which depend on my own determinations.

			° ′		″	
Epoch	1850·364	Position	176 40	Distance	2·946	Tarn Bank Observations.
—	1851·401	—	175 58	—	3·047	

Elements.

Perihelion Passage	**1836·381**
Inclination	**28° 41′**
Position of Ascending Node	**19 32**
Angle between the Lines of Nodes and Apsides	**298 22**
Excentricity	**0·8876**
Period	**185·71 years.**

"These elements represent the observations very well."

*** An explanatory drawing was sent.**

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